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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/536,000	03/27/00	BAILEY A	LAMIP130/P05

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IM62/0424

EXAMINER	
ALEJANDRO MULERO,L	
ART UNIT	PAPER NUMBER
1763	3

DATE MAILED: 04/24/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/536,000	BAILEY ET AL.	
	Examiner	Art Unit	
	Luz L. Alejandro	1763	

-- Th MAILING DATE of this communication appears on the cover sh t with th correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) *19-27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claims *1-27* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-18, drawn to a plasma apparatus, classified in class 118, subclass 723MA.

II. Claims 19-27, drawn to a plasma method, classified in class 438, subclass 732.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as a process in which the cusp patterns produced by the magnetic field are not shifted.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group II is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Michael Lee on 04/18/01 a provisional election was made with traverse to prosecute the invention of group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office action.

Claims 19-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

Claim 10 is objected to because of the following informalities: at lines 1-2, the phrase "said plurality" is repeated. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Saito et al., U.S. Patent 5,587,205.

Saito et al. shows the invention as claimed including a plasma processing apparatus for processing a substrate, comprising: a process chamber, defined at least in part by a wall, within which plasma is ignited and sustained for said processing; a magnetic array having a plurality of magnetic elements (electromagnets) 26a, 26b, 26c and 52, disposed around the periphery of the process chamber and producing a magnetic field establishing a plurality of cusp patterns; and a device 50a, 50b, 50c and 51, for changing the cusp pattern with respect to the wall connected between the plurality of magnetic elements and the process chamber, see figs. 7-9, and their description for specifics.

The apparatus of Saito et al. further comprises a chuck 4 (see col. 6, lines 40-43), and the whole document for complete details of the apparatus. With respect to claims 3, and 6-7, the claims are directed to method limitations instead of apparatus limitations. Since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention. The apparatus of Saito et al. either performs the claimed limitations are is capable of performing them (see the description of figs. 7-9).

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Shan et al., U.S. Patent 6,113,731.

Shan et al. shows the invention as claimed including a plasma processing apparatus for processing a substrate, comprising: a process chamber, defined at least in part by a wall, within which plasma is ignited and sustained for said processing; a magnetic array having a plurality of magnetic elements 40, 42, 50 and 52, disposed around the periphery of the process chamber and producing a magnetic field establishing a plurality of cusp patterns; and a device 60, 62 and 65, for changing the cusp pattern with respect to the wall connected between the plurality of magnetic elements and the process chamber, see figs. 2A, 2B, 3A and 3B, and their description for specifics, and the whole document for complete details of the apparatus.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4 and 8-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saito et al. , U.S. Patent 5,587,205 in view of Shan et al., U.S. Patent 6,113,731.

Saito et al. does not expressly disclose that the magnetic elements are permanent magnets, but it would have been an obvious choice of design to one having ordinary skill in the art at the time the invention was made to use permanent magnets because such magnetic elements are well known and used in the art as disclosed by Shan et al. in col. 3, lines 45-47 and in col. 9, lines 56-59, and because there is not evidence that the choice of a particular magnetic element would significantly affect the overall performance of the plasma processing apparatus.

With respect to claims 8-18, Saito et al. does not expressly disclose the use of the claimed device for physically rotating the magnetic elements. But Shan et al., in col. 4, lines 52-55, clearly discloses that is known in the art to rotate the magnetic field by physically rotate either the wafer or the magnets, as well as performing magnetic field rotations electronically. Therefore, in view of these disclosure it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus disclosed by the Saito et al. reference by further comprising a device for physically rotating the magnets as to optimize the apparatus and the method perform by the apparatus.

Claims 2-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shan et al. , U.S. Patent 6,113,731.

Shan et al. is applied as above but does not expressly disclosed the use of a chuck, but the Examiner takes official notice that chucks are known and used in the art for supporting and holding the substrate.

Shan et al. discloses in col. 3, lines 45-47 and in col. 9, lines 56-59, the use of permanent magnets or electromagnets as the magnetic elements. With respect to claims 8-18, note that Shan et al. in col. 4, lines 52-67, clearly discloses that it is known to physically rotate either the wafer or the magnets, as well as performing magnetic field rotations electronically.

With respect to claims 3, and 6-7, the claims are directed to method limitations instead of apparatus limitations. Since an apparatus is being claimed as the instant invention, the method teachings are not considered to be the matter at hand, since a variety of methods can be done with the apparatus. The method limitations are viewed as intended uses which do not further limit, and therefore do not patentably distinguish the claimed invention. The apparatus of Shan et al. either performs the claimed limitations are is capable of performing them (see the whole document).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamazaki U.S. Patent 6,099,687; Coultas et al., U.S. Patent 5,304,279; Barnes et al., U.S. Patent 5,518,547; Hershkowitz et al., U.S. Patent

5,032,205; Tan et al. U.S. Patent 5,795,451; Moslehi U.S. Patent 5,192,849; Ashtiani U.S. Patent 5,669,975; and Keller U.S. Patent 5,783,102, are cited because they disclose an apparatus similar to the instant invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 703-305-4545. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory L. Mills can be reached on 703-308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

LLAM
April 23, 2001

GREGORY MILLS
SUPERVISORY PATENT EXAMINER
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